

#2



OIPE

#2

RAW SEQUENCE LISTING

DATE: 02/07/2002

PATENT APPLICATION: US/10/051,909

TIME: 12:40:00

Input Set : A:\BB1163 US CIP Seq Listing.txt
 Output Set: N:\CRF3\02072002\J051909.raw

2 <110> APPLICANT: Allen, Steve
 3 Helentjaris, Tim
 4 Hitz, Bill
 5 Kinney, Tony
 6 Tingey, Scott
 8 <120> TITLE OF INVENTION: Plant Sugar Transport Proteins
 10 <130> FILE REFERENCE: BB1163 US CIP
 C--> 12 <140> CURRENT APPLICATION NUMBER: US/10/051,909
 C--> 13 <141> CURRENT FILING DATE: 2002-01-17
 15 <150> PRIOR APPLICATION NUMBER: 60/083,044
 W--> 16 <151> PRIOR FILING DATE: April 24, 1998
 18 <160> NUMBER OF SEQ ID NOS: 38
 20 <170> SOFTWARE: Microsoft Office 97
 22 <210> SEQ ID NO: 1
 23 <211> LENGTH: 2824
 24 <212> TYPE: DNA
 25 <213> ORGANISM: Zea mays
 27 <220> FEATURE:
 28 <221> NAME/KEY: unsure
 29 <222> LOCATION: (29)
 31 <220> FEATURE:
 32 <221> NAME/KEY: unsure
 33 <222> LOCATION: (622)
 35 <220> FEATURE:
 36 <221> NAME/KEY: unsure
 37 <222> LOCATION: (636)
 39 <220> FEATURE:
 40 <221> NAME/KEY: unsure
 41 <222> LOCATION: (638)
 43 <220> FEATURE:
 44 <221> NAME/KEY: unsure
 45 <222> LOCATION: (669)
 47 <220> FEATURE:
 48 <221> NAME/KEY: unsure
 49 <222> LOCATION: (771)
 51 <220> FEATURE:
 52 <221> NAME/KEY: unsure
 53 <222> LOCATION: (822)
 55 <220> FEATURE:
 56 <221> NAME/KEY: unsure
 57 <222> LOCATION: (856)
 59 <220> FEATURE:
 60 <221> NAME/KEY: unsure

ENTERED

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/051,909

DATE: 02/07/2002
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Input Set : A:\BB1163 US CIP Seq Listing.txt
Output Set: N:\CRF3\02072002\J051909.raw

61 <222> LOCATION: (889)
 63 <220> FEATURE:
 64 <221> NAME/KEY: unsure
 65 <222> LOCATION: (896) {
 67 <220> FEATURE:
 68 <221> NAME/KEY: unsure
 69 <222> LOCATION: (944)
 71 <400> SEQUENCE: 1
 W--> 72 cccacccccc tccactccac taccacggng gcacggcctg cctctgcagc tctgccctgc 60
 73 tccgcacccc tcgctctcca accccaaacgc gggcggtgc taaaattcac ctcagcgcgt 120
 74 actccagtt gccacacctca ccacccgccc cgcgttta agaaggcccc ggcggccatc 180
 75 ggggatcaag aaccttggcc ggcgtgccc gagtgggggc gttagatttc ggcggccatg 240
 76 gggggcgcgg tgatggtcgc catcgccgc tctatccgc acttgcgtca gggctgggac 300
 77 aatgcgacaa ttgctggagc cgtcctgtac ataaaagaagg aattcaacct gcagagcggag 360
 78 cctctgatcg aaggcctcat cgtcgcattt ttcctcattt gggcaacagt catcacaaca 420
 79 tctccggggc caagggtcta ctgcgttggt aggaggccca tgcgttgcgc ctcggctgtc 480
 80 ctctacttcg tcagttggct ggtgatgctt tggcgccaa ttgtgtacat cttgccttc 540
 81 gcaaggctca ttgatgggtt cggtatcggt ttggcggtca cacttgcattt tctctacatc 600
 W--> 82 tccgaaaactg caccgcacag ahattcttg ggctgnntga acacggttgc gcagttcatt 660
 W--> 83 ggggtcagn ggggatgtt cctctcctac tgcattgtgt ttggatgtc ctcatgccc 720
 W--> 84 aaacctgatt ggaggctcat gttggagtt ctgtcgatcc cgtcacttat ntacttttga 780
 W--> 85 ctgactgtct tctacttgc tgaatcacca aggtggctt thagcaaagg aaggatggcg 840
 W--> 86 gaggcgaaga gagtgnntgca aaggctgcgg ggaagagaag atgtctcang ggaganggct 900
 W--> 87 cttctagttt aagggttggg gtcggtaaa gatacacgta tttnagagta catcatttga 960
 88 cctgccaccc aggcagccga tgcatttgc actgacggtg ataaggaaca aatcacactt 1020
 89 tatggcctg aagaaggcca gtcattggatt gctcgaccc ttaaggacc catcatgtt 1080
 90 ggaagtgtgc ttctcttgc atctcgatc gggagcatgg tgaaccagag tgtaccctt 1140
 91 atggatccga ttgtgacact ttgtgttagt gtccatgaga atatgcctca agctggagga 1200
 92 agtatgagga gcacattgtt tccaaacttt ggaagtatgt tcagtgtcac agatcagcat 1260
 93 gccaaaaatg agcagtggga tgaagagaat cttcataggg atgacgagga gtacgcattt 1320
 94 gatggtgcag gaggtgacta tgaggacaat ctccatagcc cattgtgtc caggcaggca 1380
 95 acaggtgcgg aaggaaagga cattgtgcac catggtcacc gtggaaatgtc tttgagcatg 1440
 96 agaaggcaaa gcctcttagg ggagggtgg gatgggtga gcagcactga tattcggtgg 1500
 97 gatggcagc ttgctggaa atggtcagag aaggaagggt agaatggtag aaaggaaggt 1560
 98 gtttcaaaa gatgtactt gcaccaagag ggagttctt gtcacaaag gggctcaatt 1620
 99 gtttcaattt ccgggtgtgg cgtatgttctt gagggtagtg agttgtaca tgcgtgtct 1680
 100 ttagtaagtc agtcagact ttctcaaaag ggtcttgcg aaccacgcgt gtcagatgt 1740
 101 gccatggttc acccatctga ggtagctgcc aaagggtcac gttggaaaga ttgtttgaa 1800
 102 cctggagtga ggcgtgcctt gttagtcgtt gttggattt agatcctca acagtttgc 1860
 103 ggaataaaacg gtgttctgta ctataccca caaatttctt agcaagctgg tttggcagg 1920
 104 attctttcca aatttggctt cagctggca tcagcatcca tcttgcattt ttctctcact 1980
 105 accttactaa tgcttcctt cattggctt gccatgtgc ttatggatct ttccggaaaga 2040
 106 aggttttgc tgctaggcac aattccaatc ttgatagcat ctctagttt cttgggtgt 2100
 107 tccaaatctaa ttgatgggg tacactagcc catgtttgc tctccaccat cagtgttata 2160
 108 gtctacttct gtcgttgcgt tatggattt ggtcccatcc ccaacatttt atgtgcagag 2220
 109 atctttccaa ccagggttcg tggctctgtt attggcattt gtgcctttac attctggatc 2280
 110 ggagatataca tcgtcaccta cagccttctt gtgtatgtca atgttattgg actggcggtt 2340
 111 gttttcagca tatatgcagt cgtatgttctt atttccattt tgcgttgcattt ccttaagg 2400
 112 cctgagacaa agggatgcc ctttgcgtt attaccgaat tctttgcagt tgggtgcgaag 2460

RAW SEQUENCE LISTING
PATENT APPLICATION: US/10/051,909

DATE: 02/07/2002
TIME: 12:40:00

Input Set : A:\BB1163 US CIP Seq Listing.txt
Output Set: N:\CRF3\02072002\J051909.raw

113 caagcggctg caaaaggcta atttctttgg tacctttgtg tgcaactatt gcactgttaag 2520
 114 ttagaaacctt gaagggggtt caccaagaag ctccggagaat tactttggat ttgtgttaaat 2580
 115 gttaagggaa cgaacatctg ctcatgctcc tcaaaccgta aaaaagagtc cctcaatggc 2640
 116 aaataggagt cgtaatgttg tcaatgtcat ttaccatatg ttttacctat ttgtactgtta 2700
 117 ttataagtc a gctattcaa cgctgggtgt tgctagaaat cttagaaaca aagatgataa 2760
 118 tgatctgatc tgatgttata atattcaa at ctaaataaa gaaaatatcg tttctcaaaa 2820
 119 aaaa 2824
 121 <210> SEQ ID NO: 2
 122 <211> LENGTH: 747
 123 <212> TYPE: PRT
 124 <213> ORGANISM: Zea mays
 126 <220> FEATURE:
 127 <221> NAME/KEY: UNSURE /
 128 <222> LOCATION: (129)
 130 <220> FEATURE:
 131 <221> NAME/KEY: UNSURE /
 132 <222> LOCATION: (133)..(134)
 134 <220> FEATURE:
 135 <221> NAME/KEY: UNSURE /
 136 <222> LOCATION: (144) /
 138 <220> FEATURE:
 139 <221> NAME/KEY: UNSURE /
 140 <222> LOCATION: (178) /
 142 <220> FEATURE:
 143 <221> NAME/KEY: UNSURE /
 144 <222> LOCATION: (207) /
 146 <220> FEATURE:
 147 <221> NAME/KEY: UNSURE /
 148 <222> LOCATION: (218) /
 150 <220> FEATURE:
 151 <221> NAME/KEY: UNSURE /
 152 <222> LOCATION: (220)
 154 <220> FEATURE:
 155 <221> NAME/KEY: UNSURE /
 156 <222> LOCATION: (236)
 158 <400> SEQUENCE: 2
 159 Met Gly Gly Ala Val Met Val Ala Ile Ala Ala Ser Ile Gly Asn Leu
 160 1 5 10 15
 162 Leu Gln Gly Trp Asp Asn Ala Thr Ile Ala Gly Ala Val Leu Tyr Ile
 163 20 25 30
 165 Lys Lys Glu Phe Asn Leu Gln Ser Glu Pro Leu Ile Glu Gly Leu Ile
 166 35 40 45
 168 Val Ala Met Phe Leu Ile Gly Ala Thr Val Ile Thr Thr Ser Pro Gly
 169 50 55 60
 171 Pro Arg Ala Asp Cys Val Gly Arg Arg Pro Met Leu Val Ala Ser Ala
 172 65 70 75 80
 174 Val Leu Tyr Phe Val Ser Gly Leu Val Met Leu Trp Ala Pro Ile Val
 175 85 90 95
 177 Tyr Ile Leu Leu Leu Ala Arg Leu Ile Asp Gly Phe Gly Ile Gly Leu

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178	100	105	110
180 Ala Val Thr Leu Val Pro Leu Tyr Ile Ser Glu Thr Ala Pro His Arg			
181	115	120	125
W--> 183 Xaa Ser Trp Gly Xaa Xaa Asn Thr Leu Pro Gln Phe Ile Gly Val Xaa			
184	130	135	140
186 Gly Gly Met Phe Leu Ser Tyr Cys Met Val Phe Gly Met Ser Leu Met			
187 145	150	155	160
189 Pro Lys Pro Asp Trp Arg Leu Met Leu Gly Val Leu Ser Ile Pro Ser			
190	165	170	175
W--> 192 Leu Xaa Tyr Phe Gly Leu Thr Val Phe Tyr Leu Pro Glu Ser Pro Arg			
193	180	185	190
W--> 195 Trp Leu Val Ser Lys Gly Arg Met Ala Glu Ala Lys Arg Val Xaa Gln			
196	195	200	205
W--> 198 Arg Leu Arg Gly Arg Glu Asp Val Ser Xaa Glu Xaa Ala Leu Leu Val			
199	210	215	220
W--> 201 Glu Gly Leu Gly Val Gly Lys Asp Thr Arg Ile Xaa Glu Tyr Ile Ile			
202 225	230	235	240
204 Gly Pro Ala Thr Glu Ala Ala Asp Asp Leu Val Thr Asp Gly Asp Lys			
205	245	250	255
207 Glu Gln Ile Thr Leu Tyr Gly Pro Glu Glu Gly Gln Ser Trp Ile Ala			
208	260	265	270
210 Arg Pro Ser Lys Gly Pro Ile Met Leu Gly Ser Val Leu Ser Leu Ala			
211	275	280	285
213 Ser Arg His Gly Ser Met Val Asn Gln Ser Val Pro Leu Met Asp Pro			
214	290	295	300
216 Ile Val Thr Leu Phe Gly Ser Val His Glu Asn Met Pro Gln Ala Gly			
217 305	310	315	320
219 Gly Ser Met Arg Ser Thr Leu Phe Pro Asn Phe Gly Ser Met Phe Ser			
220	325	330	335
222 Val Thr Asp Gln His Ala Lys Asn Glu Gln Trp Asp Glu Glu Asn Leu			
223	340	345	350
225 His Arg Asp Asp Glu Glu Tyr Ala Ser Asp Gly Ala Gly Gly Asp Tyr			
226	355	360	365
228 Glu Asp Asn Leu His Ser Pro Leu Leu Ser Arg Gln Ala Thr Gly Ala			
229	370	375	380
231 Glu Gly Lys Asp Ile Val His His Gly His Arg Gly Ser Ala Leu Ser			
232 385	390	395	400
234 Met Arg Arg Gln Ser Leu Leu Gly Glu Gly Asp Gly Val Ser Ser			
235	405	410	415
237 Thr Asp Ile Gly Gly Trp Gln Leu Ala Trp Lys Trp Ser Glu Lys			
238	420	425	430
240 Glu Gly Glu Asn Gly Arg Lys Glu Gly Gly Phe Lys Arg Val Tyr Leu			
241	435	440	445
243 His Gln Glu Gly Val Pro Gly Ser Arg Arg Gly Ser Ile Val Ser Leu			
244	450	455	460
246 Pro Gly Gly Gly Asp Val Leu Glu Gly Ser Glu Phe Val His Ala Ala			
247 465	470	475	480
249 Ala Leu Val Ser Gln Ser Ala Leu Phe Ser Lys Gly Leu Ala Glu Pro			
250	485	490	495

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```

252 Arg Met Ser Asp Ala Ala Met Val His Pro Ser Glu Val Ala Ala Lys
253      500          505          510
255 Gly Ser Arg Trp Lys Asp Leu Phe Glu Pro Gly Val Arg Arg Ala Leu
256      515          520          525
258 Leu Val Gly Val Gly Ile Gln Ile Leu Gln Gln Phe Ala Gly Ile Asn
259      530          535          540
261 Gly Val Leu Tyr Tyr Thr Pro Gln Ile Leu Glu Gln Ala Gly Val Ala
262 545          550          555          560
264 Val Ile Leu Ser Lys Phe Gly Leu Ser Ser Ala Ser Ala Ser Ile Leu
265      565          570          575
267 Ile Ser Ser Leu Thr Thr Leu Leu Met Leu Pro Cys Ile Gly Phe Ala
268      580          585          590
270 Met Leu Leu Met Asp Leu Ser Gly Arg Arg Phe Leu Leu Leu Gly Thr
271      595          600          605
273 Ile Pro Ile Leu Ile Ala Ser Leu Val Ile Leu Val Val Ser Asn Leu
274      610          615          620
276 Ile Asp Leu Gly Thr Leu Ala His Ala Leu Leu Ser Thr Ile Ser Val
277 625          630          635          640
279 Ile Val Tyr Phe Cys Cys Phe Val Met Gly Phe Gly Pro Ile Pro Asn
280      645          650          655
282 Ile Leu Cys Ala Glu Ile Phe Pro Thr Arg Val Arg Gly Leu Cys Ile
283      660          665          670
285 Ala Ile Cys Ala Phe Thr Phe Trp Ile Gly Asp Ile Ile Val Thr Tyr
286      675          680          685
288 Ser Leu Pro Val Met Leu Asn Ala Ile Gly Leu Ala Gly Val Phe Ser
289      690          695          700
291 Ile Tyr Ala Val Val Cys Leu Ile Ser Phe Val Phe Val Phe Leu Lys
292 705          710          715          720
294 Val Pro Glu Thr Lys Gly Met Pro Leu Glu Val Ile Thr Glu Phe Phe
295      725          730          735
297 Ala Val Gly Ala Lys Gln Ala Ala Ala Lys Ala
298      740          745
300 <210> SEQ ID NO: 3
301 <211> LENGTH: 443
302 <212> TYPE: DNA
303 <213> ORGANISM: Oryza sativa
305 <220> FEATURE:
306 <221> NAME/KEY: unsure
307 <222> LOCATION: (193)
309 <220> FEATURE:
310 <221> NAME/KEY: unsure
311 <222> LOCATION: (388)
313 <220> FEATURE:
314 <221> NAME/KEY: unsure
315 <222> LOCATION: (435)
317 <220> FEATURE:
318 <221> NAME/KEY: unsure
319 <222> LOCATION: (439)
321 <400> SEQUENCE: 3

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(2) The sequence listing is contained in a file named J051909.raw
The file contains 443 characters of sequence data and 1229 lines of
commentary data. The sequence is represented by two lines of characters of
each sequence using n or Xaa.

VERIFICATION SUMMARY DATE: 02/07/2002
PATENT APPLICATION: US/10/051,909 TIME: 12:40:01

Input Set : A:\BB1163 US CIP Seq Listing.txt
Output Set: N:\CRF3\02072002\J051909.raw

L:12 M:270 C: Current Application Number differs, Replaced Application Number
L:13 M:271 C: Current Filing Date differs, Replaced Current Filing Date
L:16 M:256 W: Invalid Numeric Header Field, Wrong Prior FILING DATE:YYYY-MM-DD
L:72 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:72 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:82 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:82 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:83 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:83 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:84 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:84 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:85 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:85 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:86 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:86 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:87 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:1
L:87 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:1
L:183 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:2
L:183 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
L:192 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:2
L:192 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
L:195 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:2
L:195 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
L:198 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:2
L:198 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
L:201 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:2
L:201 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:2
L:325 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:325 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:328 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:328 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:329 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:3
L:329 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:3
L:357 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:4
L:357 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4
L:369 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:4
L:369 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:4
L:801 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11
L:801 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:802 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:11
L:802 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:11
L:1053 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17
L:1053 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:1055 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17
L:1055 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:1056 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17
L:1056 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:1058 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17

VERIFICATION SUMMARY

PATENT APPLICATION: US/10/051,909

DATE: 02/07/2002

TIME: 12:40:01

Input Set : A:\BB1163 US CIP Seq Listing.txt
Output Set: N:\CRF3\02072002\J051909.raw

L:1058 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:1060 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17
L:1060 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:1061 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:17
L:1061 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:17
L:1095 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:18
L:1095 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:1104 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:18
L:1104 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:1107 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:18
L:1107 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:1116 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:18
L:1116 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:18
L:1335 M:258 W: Mandatory Feature missing, <223> not found for SEQ ID#:22
L:1335 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:22
L:2516 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:35
L:2632 M:341 W: (46) "n" or "Xaa" used, for SEQ ID#:36